



WITH WHICH IS INCORPORATED THE "LANTERN WORLD."

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NOTICES.

The Optical Magic Lantern Journal and Photographic Enlarger is issued on the 1st of every month, price Two Pence, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

12 months, 3/-. United States, 75 cents.

EXCHANGE Column, General Wants, &c. (not Trade)—First 20 words, 6d.; and for every 3 additional words, 1d.

SMALL ADVERTISEMENTS must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to the Magic Lantern Journal Company, Limited.

EDITORIAL communications must be addressed, J. HAY TAYLOR. Advertisements and business communications to THE MAGIC LANTERN JOURNAL COMPANY, Limited, 9, Carthusian Street, London, E.C.

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NOTES.

Royal Photographic Society.—The usual soirée to mark the opening of the annual exhibition of this society was held at the New Gallery, 121, Regent Street, W., on the 29th ult., at which a large number of guests were present. On the 1st inst. it will be open to the public for five weeks. Several lantern exhibitions will be given during stated evenings, and on the opening night Mr. A. L. Henderson will exhibit his interesting series of slides of Bordighera.

Recruiting by Means of the Lantern.—The lantern has been taken up by the War Office as an aid to getting recruits. A series of cinematographic views have been prepared illustrative of the life of a soldier from the raw recruit to the perfect soldier living a life of ease. Exhibitions are to be given permanently in a hall in London, and recruiting sergeants will be on hand to attend to the wants of those who wish to join the ranks. Several touring companies are to be despatched throughout the provinces, with a recruiting sergeant on the staff of each company.

"Give the Drum a One'er."—A new journal, the *Showman*, made its bow to the public last month. It is to be issued monthly at one penny from the offices of the *Photographic Dealer*, 15, Harp Alley, Farringdon Street, E.C. This new paper appeals to those connected with variety shows, roundabouts, nigger troupes, menageries, travelling museums, etc. The first number reflects great credit (and shall we say daring) upon Mr. Arthur C. Brookes, its editor and proprietor, who deserves the great success which we wish both him and his new venture.

Smart Work.—During the recent session of the Ohio and Michigan Photographic Association a negative and finished print were made during the evening. A negative was made by acetylene light with an exposure of four seconds, this was developed and a print made also by acetylene, the whole operations only taking eight minutes and twenty-four seconds.

Photographing Servants.—It would appear that in Siam some are greatly troubled with dishonest servants, for the *Siam Free Press* contains the following communication from a reader who signs himself "Caution." He says: "Having myself suffered very much from the dishonesty of servants who always managed to avoid arrest, I think it would be a very good thing if we got all our servants photographed. In case of their disappearance then we should find it easier to put the police on the track. Owing to the very large number of faces of Chinese that one meets with in Bangkok every day, one soon forgets one's own servant when the face has been missed for any length of time. Besides, their peculiar physiognomy makes it hard for a *farang* to distinguish one Chinaman from another. A photograph of the servants would, therefore, serve a very useful purpose, I think; and it might also have a deterrent effect on them when they knew that they have been marked."

Preparing Calcium Carbide for Transportation.—When calcium carbide is treated as follows, it is claimed that merely wetting it with water is not sufficient to generate acetylene; there must be some inches of water-pressure to effect this. Melt together equal parts of cocoa-butter, sugar, and paraffin wax, and stir in a small quantity of tartaric acid. Into this mixture the carbide is placed until it is thoroughly impregnated.

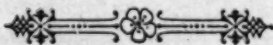
Paris Exhibition Slides.—A great treat was afforded to the members and their friends of the London and Provincial Photographic Association on the 20th ult., when Mr. A. L. Henderson projected a great number of views of the Paris Exhibition. These views were extremely fine and interesting, notwithstanding that many were taken under great disadvantages. Mr. Henderson, however, always comes out on top, in spite of all drawbacks, including being on the verge of being arrested by gendarmes for trying to photograph certain views.

Opaque Lantern Extraordinary.—As a rule lanternists consider that to use the opaque lantern with satisfactory results, it is requisite to have a couple of limelight jets to illuminate the object intended to be projected. However, we learn differently from the well-known periodical *Answers*, and the story is certainly very funny reading. It is as follows:—"A few years ago the Yeomanry of one of our Midland towns were startled by a ghost. This ghost was the apparition of a woman in white robes and long, streaming hair, her hands raised to her head. She appeared in a country road at 9.30 every evening for weeks, seen against a hedgerow on a hill, and only visible to people on horseback, or on the driving-seat of waggons. A mining engineer serving in the Yeomanry discovered the secret by means of a difficult study in mathematics, and, to prove his conclusions, called at a house three-quarters of a mile distant from the position of the ghost. Here he was allowed to visit the room occupied by the daughter of the house, and in answer to his enquiry she confessed that she always dressed her hair before a pier-glass at the back of the room opposite the window. At the window stood a lamp on a crystal standard. The light from the mirror was gathered by the crystal, and thrown out through the window. Three-fourths of a mile away, against a tall, dark hedgerow, the rays of light came into exact focus as the ghost of a white lady with uplifted hands."

"The Photo-Miniature."—The last two numbers of this magazine, which is published in this country by Dawbarn and Ward, Limited, contain respectively two excellent essays, viz., "Intensification and reduction," and "Bromide printing and enlarging." Each subject is treated in an exhaustive manner.

Kodak Dividend.—For the quarter ending September 30th, Kodak, Limited, have declared interim dividends of 6 per cent. on the preference shares and $2\frac{1}{2}$ per cent. on the ordinary shares, and a further dividend of $2\frac{1}{2}$ per cent. on account of bonus for the year.

The Late Mr. A. A. Wood.—It is with great regret that we have to announce the death of Mr. A. A. Wood, the head of the well-known optical and lantern business of E. G. Wood, which took place on the 10th ult. from heart disease. Mr. Wood had been ailing for some months, but was able to be at business until within a few days of his decease. Mr. Wood was a man of high qualities, and to know him was to admire his sterling abilities. By his death the City Corporation have lost a respected and prominent member.



The Total Eclipse of the Sun (28th May, 1900), and its Photographic Results—No. II.

By W. H. GOLDING.

Continued from page 112.

ALL, or nearly all, the stations occupied appear to have been amply provided with the means of securing these photographic records, from the ordinary camera with lenses of long focus, giving an image of the moon's disc from an eighth to a quarter of an inch in diameter, surrounded by the glowing solar appendages, to the magnificent telescopes employed by the Astronomer-Royal and other representatives of official observatories, in some of which the image of the eclipsed sun was enlarged, by means of secondary magnification on the principle of the telephotographic lens, to cover a disc 4 inches in diameter; and as clear and almost unclouded skies proved to be the order of the day at nearly every station, a large number of excellent photographs have been secured, showing very clearly the form and arrangement of the coronal streamers and of the prominences of the chromosphere. The eclipse was by universal consent pronounced to have been a very light one; the darkness and gloom which overspreads the landscape during the total phase, and which has frequently rendered the use of lamps necessary to enable the figures on the clocks and watches and on the scales of

the instruments to be read by those using them, having proved far less intense than during some other eclipses of recent years, rendering a shorter exposure of the photographic plates sufficient to produce a satisfactory image, than that found to give the best results in former instances. Thus the Thompson photo-heliograph of the Greenwich Observatory, with its telephotographic lens giving the 4 inch disc, required an exposure not exceeding 12 seconds, against 20 seconds found needful during the Indian eclipse of 1898, while with the smaller instruments, having lenses of 3 or 4 feet focal length, the greater concentration of the light on the small image rendered an exposure of one second sufficient to secure a well defined image. The corona appeared much whiter than on many previous occasions, when it has been distinctly violet in hue. The activity of the sun's atmosphere, or of the outer layers of his globe, which shows itself in the occurrence of sunspots, has long been found to pass through a regular period of increase and decline, attaining a maximum every 11 years, and afterwards subsiding until a minimum has been reached, when few spots, if any, are visible, after which the activity is again gradually renewed.

During periods of maximum disturbance, such as occurred in 1893, the coronium and other substances forming the corona have usually been found nearly

evenly distributed

around the sun's disc, though taking the form of luminous rays or filaments alternating with darker lines or rifts radiating from his surface in all directions. This was very apparent in the photographs and drawings made in Brazil and Western Africa during the eclipse seen there in 1893. On the other hand, eclipses occurring when the sunspot activity was at its lowest point, as was the case in 1878 and 1889, have shown the corona extended greatly in the direction of the sun's equator and but very slightly in that of his poles, forming long equatorial appendages which have been compared to wings or fish-tails. The present year being again one of minimum sunspot disturbance, the question whether the conditions of 1878 and 1889 would repeat themselves, and the great equatorial extensions of the corona would reappear, became one of considerable interest. The expectation that such would be the case has been fully realised. The photographs secured, as well as the drawings made by those who watched the eclipse for the purpose of thus recording their impressions of the corona as seen by them,

give two great extensions in the direction of the solar equator, one apparently dividing itself at its outer extremity into two pointed and somewhat curved horns or projections, like the rays of the fish's tail, while the opposite one appeared single and rather tapering towards a rounded and blunted extremity. In both the coronal streamers seemed to radiate from the sun's surface, and, as they extended farther outwards, to be compressed and gathered together to form the great equatorial bundles or extensions described above. These had been observed during the eclipse seen in India in 1898 to extend to a distance east and west of the sun estimated as being equal to six times the solar diameter. On the present occasion they appeared shorter and less sharply pointed, extending to a distance from two and a half to three diameters from the sun's centre.

Most of the photographs show the planet Mercury distant about two degrees from the sun (and therefore completely concealed by the brightness of his light, excepting during the eclipse), and the streamers of the divided coronal appendage appeared to extend almost as far as the planet's position. The planet Mars and the brilliant fixed star Sirius were also seen in great splendour by some observers; while Professor Howe, of Denver University, in the United States,

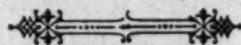
obtained photographs

showing the minute planet Eros near the first point of the constellation Aries. The inner parts of the corona, or those situated immediately above the sun's surface, present many features of extreme interest to astronomers and students of solar physics; but these, being far more luminous than the streamers of the outer portion, require a much shorter exposure, and are best shown in the larger photographs, and in those which received an exposure too short to give any satisfactory image of the outer extensions; while in those which exhibit the latter perfectly, the details of the inner portions and the prominences of the chromosphere are obliterated, as the result of over-exposure.

Numerous photographs of the spectra of these portions of the solar envelope have also been secured at the various stations, and it may be confidently hoped that the careful comparison of so many excellent results may tend to throw much light on the constitution of our central sun, and may help materially in the solution of the still unsolved problems in solar physics which engage so large a share of the thought and attention of our leading men of science.

Even in England, although only a part of the sun's disc was obscured, and the brilliant spectacle presented to the observers within the band of totality was denied to us, some excellent photographs of the partially eclipsed sun were obtained in various parts of the country, amongst others at Hawkhurst in Kent, in Liverpool, and from several positions in the neighbourhood of the metropolis; while similar success has attended the observers at McGill University in Montreal, and others in various directions.

Mr. Evershed, who had selected a position in the neighbourhood of Algiers, close to the margin of the shadow band, in the hope of securing photographs of the lower portions of the sun's chromosphere, for which such a position would be especially favourable, had a disappointing experience. A slight error in the accepted estimate of the diameter of the shadow-band led him to select a position which proved to be about 100 yards outside the desired limit, while the same error led to the duration of the total phase being slightly shorter than had been expected; the observers at Algiers, in Montreal, and elsewhere, finding their opportunity of observation reduced by two or three precious seconds. Such are the disappointments to which the best laid plans of man are occasionally subject, and such the incidents which, annoying at the time, help to secure the attainment of greater accuracy in the future—an object which will doubtless be materially promoted as the result of the many successful observations of this, the last total solar eclipse of the 19th century.



Temperance Teaching by Means of the Optical Lantern.

By JUDSON BONNER.

A lecture delivered at the World's Temperance Congress, London, June, 1900, illustrated with a large number of representative slides, shown by a powerful electric lantern.



THE old as well as the young generally receive more lasting impressions from what they see than from what they hear. Hence it is most important in the teaching of temperance principles to attract the eye as well as the ear. The simplest object may help to enforce a truth so that it will not be forgotten. The teacher of science, acting on this theory, proves his statements by means of practical experiments, diagrams, and blackboard illustrations.

Pictures especially hold an increasingly important place amongst the teacher's tools. Nearly 50 years ago good Thos. B. Smithies was so convinced of their value in attracting children to the cause, that he established the first illustrated temperance paper for the young, the *Band of Hope Review*. It has done much to arouse the interest and instruct the minds of our members, and is still the best and most popular of pictorial papers for young abstainers.

But pictures of a larger size are needed for illustrating public addresses. The panorama has proved both useful and attractive, especially before it was so easy as it now is to enlarge pictures by means of the optical lantern. The United Kingdom Band of Hope Union has from its earliest years employed the panorama with great success, and now has four in regular use. At the best, however, they are cumbersome and costly.

The growth of photography has made the production of lantern transparencies so easy and cheap, that the optical lantern has been brought within the reach of nearly all societies, both as to price and simplicity. The slides also can be hired at very low prices, and there are a large number suitable for

temperance purposes.

For speakers who wish to use only a few pictures at a time, the diagram is extremely handy. There are many now available in various countries, but the most complete are those issued by the United Kingdom Band of Hope Union. These are in three sets. The first illustrates the manufacture of intoxicating liquors, and the economy aspect of the question, under the title of "The Worship of Bacchus, a great delusion." (The following slides, copied from the diagrams, were shown and briefly described:—Malting floor and kiln, mash tun and fermenting vessels, loss of nutriment in malting and brewing, analyses of beer and milk, relative value of barley, malt, and beer; two ways of spending two shillings, bricks better than barrels, proportion of alcohol in various drinks, analyses of port wine and grape juice, manufacture of unfermented wine, the still, National expenditure.)

The second set of diagrams, "Alcohol and the human body," is intended for those who wish to teach the effect of alcohol upon the body. They show how alcohol acts as a foe to health and longevity. (Slides shown:—Alcohol a foe, comparison of alcoholic drinks with foods, alcohol and muscular power, the nervous system, alcohol and the circulation, the digestive system, alcohol and digestion, alcohol and the

stomach, alcohol and the heart, alcohol and the liver and kidneys, death from drink, comparative mortality in various occupations.)

The third set, "Abstinence and hard work," embodies the practical experience of workers in all employments and climes, and shows that every kind of labour can be done better without alcohol. (Slides shown:—The blacksmith, glass-blowers, coal-miners, reapers, railway men, printers, iron-workers, navvies, soldiers, sailors, the postal service, in the laundry.)

Several of these diagrams may be had with French inscriptions.

For the convenience of lantern lecturers who wish to go more fully into the subject than the last set of 12 pictures permits, a larger series of 40 slides can be had, under the title of "The Temperance Picture Gallery."

One of the most popular and useful of our lantern lectures is "The Temperance Sketch Book." It first gives some of the

Bible testimony

to total abstinence, and shows that when, as in the case of Hagar, God miraculously provided a drink for those who were perishing—that drink was pure water; also that this was the beverage of those who were strongest and wisest, Samson and Daniel being notable instances.

It next deals with the manufacture of intoxicating drinks, and teaches that to produce them requires the destruction of all kinds of foods which God has given for the use of His creatures.

Its third section describes some of the social effects of drinking, and the benefits total abstinence confers on those who adopt it.

Another extremely useful lecture is "A temperance journey round the world." It comprises interesting features connected with drinking in many lands, and shows how National prosperity has in many instances declined as drinking habits have increased, and *vice versa*.

It was fitting that the Jubilee of the Band of Hope movement in 1897 should be marked by the issue of a valuable lecture showing its rise and progress. This tells the story of the admirable labours of Mrs. Carlile, who spent the last 30 years of a long and honoured career in winning children to the safe side. Together with the Rev. Jabez Tunnicliff she originated and gave the society its happy name "Band of Hope." Its subsequent history is traced in an interesting manner, and the lecture also shows what a great variety of work is being done among the young in our schools, workhouses, training ships, and other institutions.

The excellent work of the Temperance Hospital is described in a short but useful lecture. Its foundation and growth, its devoted supporters and staff, its various wards and departments, all help to make up an instructive story, which cannot be too well known. This hospital is an object lesson to the world, proving by actual experience that alcohol is as unnecessary as a medicine as it is as a beverage.

The temperance movement owes so much to John B. Gough, that his remarkable life and wonderful work are fully deserving of commemoration through the lantern. The lecture, "A famous orator: An evening with John B. Gough," tells the story of his early life and rescue from the slavery of drink. It is a striking instance of how the kindness and earnest pleading of an humble man may be the means of saving one whose burning words shall influence untold myriads for good. A number of quotations from his orations are given, with graphic illustrations.

Much may be taught through the medium of stories. There are now a great number of good temperance tales illustrated by slides. One of the most popular and powerful is "The little captain." A working man becomes a drunkard, and ruins his happy home and his prospects. His children are taunted by their companions, "Your father's a drunkard." The family removes to a wretched court, and there little Jamie forms amongst the children a band of "cold spring volunteers." The sufferings of the little ones are

touchingly portrayed.

Finally Jamie, "the little captain," dies from the effects of a blow received from his tipsy father. This leads to the man's reformation, and little Jamie's work lives in after years, and does much for the good of the wretched neighbourhood.

The combination of music and story is a happy one, and much more so when coupled with the additional charm of illustrative pictures. Amongst these temperance stories with song, probably none has had so large a sale and accomplished so much good as "John Tregenoweth, his mark," by Rev. Mark Guy Pearse. John is a blind Cornishman, who is led about by his daughter Mary, and earns a living by playing the fiddle in the streets and at public-houses. The temptation to drink is too great for him. In one of his drunken fits the little maid is knocked down and injured. Her illness brings John to his senses, and when she recovers he tells her he will sign the pledge. She reminds him that someone must write for

him, and he must make a cross. "That will be John Tregenoweth, his mark," she says. At this moment his finger touches the scar of the wound, and he says bitterly "John Tregenoweth, his mark!" This thought comes to him whenever he is tempted to break his pledge, and the story has a happy ending.

The teaching of temperance by means of song has always been one of our prime methods of propaganda. Some of these songs lend themselves readily to lantern illustration, and I feel sure that when the singers see the graphic representation of what they are singing, the force of the truth is much more likely to be realised and remembered.

The illustration of solos, in which the words do not appear on the screen, is becoming more popular, and proves a welcome item in a programme. Simple temperance songs may often thus be made more pleasing, if suitable pictures be chosen.

Some of our most popular recitations have been illustrated with slides. It is a capital change for such recitations to be performed by different persons. They

may be introduced

into lectures, or a full programme may be given of recitations and songs with lantern illustrations.

It is well to mix temperance slides with others, or the audience may weary of the subject. The Band of Hope Union has for years hired out complete sets sufficient for an evening's exhibition, in which the temperance subjects are judiciously introduced, each programme having a pleasing variety and a specially prepared reading. This renders it much easier for societies to use the lantern, and the plan is greatly appreciated.

I have dealt thus fully with the methods of lantern work adopted in the United Kingdom, because this country has been foremost in the production of temperance slides and the cheapening of lantern apparatus. Other countries have bought largely from us, but the differences of language and style make the selection of suitable slides very difficult. Latterly, however, some other countries have commenced preparing their own. I give some examples from a short series just issued by the central committee of "L'Espoir," the Swiss Band of Hope Union. They are intended to show how the work amongst the children is carried on.

In one we see a meeting being instructed in the chemistry of temperance, with experiments and blackboard illustrations. The speaker is

Mons. Gustave Regamey, founder of L'Espoir, and its principal agent. This gentleman spent a winter in England for the purpose of learning the language and studying our Band of Hope methods. Right well has he benefited by what we were able to do for him. He has translated and adapted many of our publications, including an admirable little chemical primer by my friend, Mr. Walter N. Edwards, F.C.S. Many of these lessons and recitations appear in a capital periodical he issues monthly for the children, in which the teaching is very thorough.

Mons. Regamey is a firm believer in the value of the lantern, and has collected a large assortment of the most suitable slides, besides selling the necessary apparatus.

Our friends in Finland also are making free use of the lantern. They have purchased a considerable number of slides and lanterns, and are working in connection with an educational society, so that temperance slides are used in combination with those on such

useful subjects

as astronomy, geology, physiology, bee culture, poultry rearing, etc. They are now commencing to prepare their own slides.

The Union Francaise Antialcoolique has issued a capital assortment of slides, under the able direction of our good friends Dr. Legrain and Pasteur Henri Merle d'Aubigné. One set contains 58 slides of an educational character. They describe how alcoholism injures the various organs of the body, and promotes diseases of the most loathsome and terrible character.

Some of the instances illustrated have come under Dr. Legrain's observation in his professional capacity as chief physician of one of the French lunatic asylums. There are also some valuable charts and tables, giving interesting information as to the consumption of alcohol in different lands, etc.

Two life-model sets have been issued. One illustrates the progress of degradation in the home of a drunkard, and the sufferings of his children. A sober workman when he marries, he takes to drinking, and his wife and children have to suffer privation and hunger. The three children cry for bread. To get food for them the mother parts with her household treasures one by one until the furniture is all gone, and the little ones have nothing but an old mattress to sleep upon. On his return one night she pleads with him, and declares she can bear his cruelty no longer. Mad with drunken rage he

deals her a fatal blow, and then on seeing its effect he runs away, leaving the helpless children to the tender mercies of the world.

Another life-model set is of a more cheerful character. Little Madeleine joins the Band of Hope, where she eagerly drinks in the instruction given by Madame Donadieu. She takes home her papers, in which her father becomes deeply interested. Instead of going to the public-house he stays at home to help her work out a temperance sum. These things set him thinking, and in the end he decides to give up the drink.

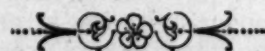
The exigencies of the work in France make it necessary for these slides to be issued in two editions, one suitable for Protestants and the other with a Sister of Mercy instead of Madame Donadieu, for the use of Catholics.

In Sweden particular attention is being devoted to this style of

temperance teaching,

and in other countries which space forbids me to refer to in detail.

I trust that what I have been privileged to bring before you will lead you to realise more fully the value of this attractive method of temperance propaganda. Let us go to our respective spheres of labour with the firm resolve to leave nothing untried which is likely to further our high and holy enterprise. And may the Blessed Master who has seen fit to place this work in our hands so inspire our zeal and guide our efforts, that ever-increasing success may smile upon the temperance cause in every land, until the curse of drink be swept away, and purity, peace, and love shall reign.



A New Use for the Cinematograph.



THE possibility of using the cinematograph as a means of determining the speed at which a motor car is travelling has been mentioned several times in the French Press, and according to the *Photo-Revue*, the practical solution of the question has been almost completed by the labours of a young mechanic who has devised a special auxiliary instrument for the purpose. The method of procedure is thus described by the Editor of the *Photo-Revue* :—

"Suppose a motor vehicle is passing a given

place where the cinematographer has set up his apparatus, so that it may be as nearly as possible perpendicular to the line followed by the motor.

"The apparatus registers a certain number of successive images, A, B, C on the film.

"The ordinary manipulations having been completed, two images (separated by a certain number of others, say, B, C, D,) are superimposed so that the outlines of the fixed portions of the picture exactly coincide.

"By doing this a result is obtained such as is shown in Fig. II., and a geometrical construction such as is also there shown made. A triangle is obtained, the apex of which is the position of the optical centre of the apparatus and the two points in the base, the positions of some one point in the image of the moving object—e.g., the centre of the front wheel.



"All that now remains is to calculate the length of this base (E A), having given the angle (A), and knowing that O X is equal to the distance of the apparatus from the motor.

"This distance is the factor to be determined by the operator as accurately as possible. He may make use of reference marks on the ground and other means.

"The practical application will be free from every doubt as soon as it is possible to

exactly measure this distance. What is wanted is an instrument by which this can be done without any opportunity for errors of personal observation to creep in. A young engineer, with whom we have been in collaboration, has made most encouraging progress in this direction. With the aid of a special optical arrangement he obtains a determination of the distance which is mathematically exact. All that the operator has to do is to point the instrument in the required direction; the further details of the apparatus are for the present reserved."



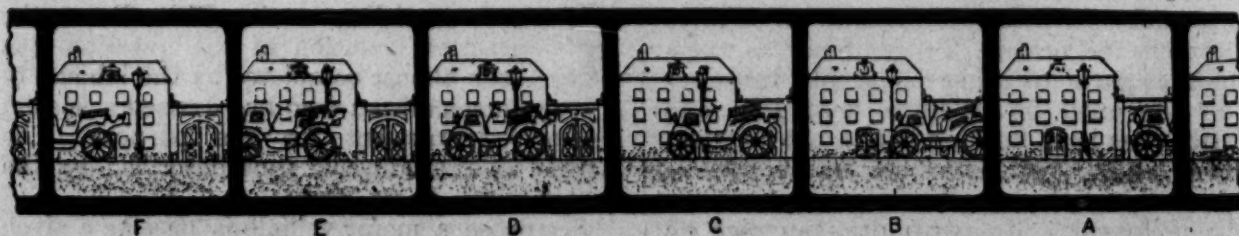
Continued from page 114.

By making the slide a little more complicated, the conjuror can be made to perform another trick. Before explaining how to fit up the necessary parts, the reader's attention should be directed once more to the celluloid strip bearing the rabbit, that forms the third leg of the table. The edges of this strip should be blackened, so that when it moves up and down its motion will not be noticed. The legs of the table being of a light colour, the effect of the slide will be heightened, for it would be impossible for any working parts to be hidden behind them; at least, so the audience would think.

Let us now see how another effect may be added to the slide, Fig. VII. will be required for reference.

On the side of the fixed glass opposite to that on which the conjuror's body, etc., are glued is fixed a similar body exactly registering over the other, so that when placed in the lantern only one body would be seen. Another similar table is also glued to this same side of the glass exactly registering over the other on the other side.

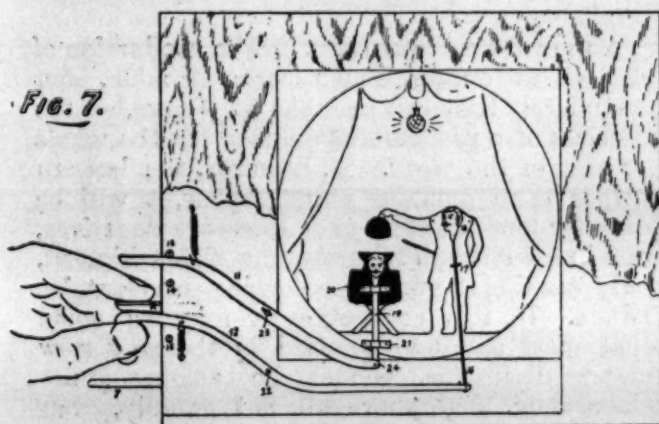
The third leg is formed by another strip of celluloid blackened at its edges, and bearing a man's head. This strip, 19, Fig. VII., will be referred to again later on. The two levers 11 and 12 are attached to the inside of the framework in the same manner as the others were.



The conjuror's head is cut out of celluloid and connected with a long wire rod 16 which passes through the staple 17. This rod is pivoted to the lever 12, which is in turn pivoted to the framework at 22. The lever is furnished with a spiral spring which is secured at one end.

The rest *r* will have to be slightly altered in shape when the two tricks are included in one slide. It must be made so that it will bend over at right angles and form a rest not only for the levers 7, *n* and *d* (Fig. I.), but also for the levers 11 and 12 (Fig. VII.).

15 is a screw serving as a stop to the lever 12. The celluloid strip 19 that we have spoken of has painted at its extreme end the face of a man—the features being those of the conjuror himself. This strip passes through two guide plates 20 and 21, pinned respectively to the table and base, and is then pivoted to the lever 11. This lever is pivoted at 23, and is furnished with a spiral spring.



13 is a stop screw. 14 is a screw limiting the play of the lever 11. All the parts necessary for the addition of another trick have been described. Before we show how to manipulate the levers for the exhibition of this second trick, we must remark that when the two tricks are combined in one slide as we have described, the conjuror's head *s* and the link connecting it with the arm *x* (Fig. I.) are dispensed with, the head being now, of course, upon the opposite side of the glass.

When all is ready, then the lever *n*, Fig. I., is raised. The cover of the dish is thereby removed, and the dish shown to be empty. The lever is then released, and the cover is replaced. The lever 12 (Fig. VII.) is now pressed up to the rest *r*. The rod 16 is pulled down bringing the conjuror's head with it, which thus mysteriously detaches itself from his shoulders and disappears from view. The lever 7 (Fig. I.) is now raised and released a few times, the

conjuror, whilst in a headless condition, being, by this means, made to strike the dish cover several blows with his wand.

The lever marked 11 (Fig. VII.) is now pulled down to the stop 14 and held there. The head painted on the strip 19 is thus raised above the level of the vessel on the table, but as the cover is on the vessel it is not yet visible to the audience. The lever *n*, Fig. I., is now pressed up and the cover thus removed. The head that had detached itself from the conjuror and disappeared, is then shown reposing within the dish. After a few seconds *n* is released and the cover consequently replaced. 11, Fig. VII., is also released, and the head at the end of the strip 19 pulled down below the level of the vessel on the table. At the same time the lever 12 (which has been kept pressed up to the rest *r* during all these operations) is released and the conjuror's head slowly takes up its proper position on his body. *n*, Fig. I., is now actuated again, and when the cover is removed, the dish is once more shown to be empty.

The reader will find that the trouble entailed in the construction of this slide will be amply repaid, for its effect when exhibited by means of the lantern on the screen is very considerable—absolutely no working parts being visible to the audience.



The Lantern in Business.

By EDGAR CLIFTON.



THE applications of the lantern as an aid in every-day commercial routine have been few and almost entirely limited to general advertising, and that usually out of doors. The results have as a rule not been encouraging to the promoters, and nearly all schemes of this character have died a natural death. There is, however, an unlimited field for the employment of the lantern in replacing the pattern book and portfolio of photographs of the manufacturer, the builder, the decorator, and, in fact, almost every trade or profession.

It is on record that the celebrated photographer Sarony had a lantern permanently installed in a screened recess, and that when a sitter called to inspect his proofs he was unexpectedly introduced to a life-sized and let us hope life-like presentment of himself, which in many cases he was anxious to secure in a more lasting form for the benefit of posterity; whereby the photographer prospered exceedingly, and his flocks and herds (or their modern

equivalents) multiplied upon the face of the earth.

Now, this is a proceeding which might be copied with advantage by almost everyone who has anything, depending more or less upon its appearance, to sell. For example, the furniture manufacturer can thus show his patrons his cabinets, chairs, and wardrobes in their natural size, with every detail as clearly defined as if the actual article were on view, instead of having to rely upon a drawing a few inches square. The dealer in carpets or other fabrics can now, thanks to such workers as Ives, Sanger, Shepherd, or Joly, show not only the designs of his goods, but their actual colours and texture, at the cost of a few shillings; whereas formerly the heavy expense of chromo-lithography was unavoidable. The same may be said of nearly all trades in which

objects of art

are handled. Glass, porcelain, wood carving, metal work, monumental sculptures, and a host of like articles may all be shown on a scale which enables the ordinary purchaser to appreciate their value far more readily than he can ever be expected to do by the aid of even the most elaborate catalogue.

To the architect, the builder, and the decorator, the lantern once used must ever afterwards be indispensable. The architect can show his patron not only general views and details of his existing masterpieces, but also examples of style of all ages and all countries; while the decorator can at will reproduce the interior fittings of the palace, the mansion, or the villa, without troubling his client even to step into the next room.

Now, as to the practical application of the suggestion. How is it to be done without such a serious loss of time that the annoyance to both buyer and seller from this cause should not outweigh the very substantial advantages of the scheme? Manifestly, limelight and oil lamps are out of court, as neither can be brought into action with sufficient readiness. We have, however, an excellent substitute for the one in the electric arc light, and for the other in the incandescent or Welsbach gas light, which require only the pressing of a button or the turning of a tap to develop their full power. The screen should wherever possible consist of a whitened wall; for small sizes an opaque screen rolling up like a map may in some cases be preferable, although even the labour of lowering the screen should if possible be dispensed with. The lantern should have its permanent stand or bracket, and the slides

carefully classified should stand in an open rack, so placed that any desired subject may be reached without effort. The lantern itself should be a single one, and the optical arrangements should be first class, as an absolutely sharp rendering of the finest details must be secured, or nothing but disappointment can result.

The general arrangements of the lantern room must of necessity be determined by circumstances. In the majority of cases a perfectly opaque curtain of thick serge or plush would suffice to darken the room sufficiently for an effective display. The lantern should be mounted upon a bracket about 5 feet from the floor on one side of the room, while the screen occupied a position on the wall facing it. If the fixed bracket were objectionable the lantern might stand upon a tall but firm pedestal on casters, which pedestal would form a convenient cabinet for slides or a holder for a small acetylene generator, if gas or electricity were not available.

So much for the lantern. The production of the slides entails much more trouble, but fortunately they can be made at leisure, or the services of a professional enlisted for the whole or part of the work. If, however, the lantern owner be an amateur photographer, it will be easy for him to secure the necessary negatives, and in many cases to make the slides himself, only needing to put the colouring into outside hands. In this connection it may be noted that most slides to be used in the way now under discussion should be coloured, not elaborately, and above all not gaudily, but sufficiently to give a clear idea of the general effect. Besides, this colouring helps to differentiate between colours

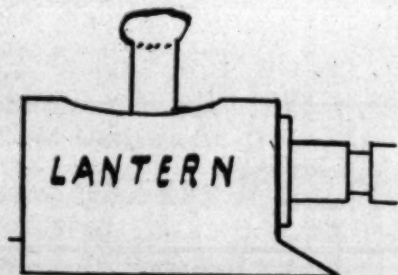
widely dissimilar

in their visual effect, but nearly the same in their photographic intensity. For example, if the house agent wishes to show his client a red brick house nestling in green trees, no monochrome can do it justice; on the other hand, a fine piece of stone carving or an oak sideboard would lose rather than gain by being artificially coloured. Before long the three colour process will become part of every-day photography, and we may then be assured that the industrial and business use of the lantern will become as general as that of the typewriter is to-day. We only need some enterprising American or Continental firm to show the way, and our manufacturers will, after assuring themselves that there really is a market, lay themselves out to satisfy their new *clientèle*.

The Relation of Man to the Optical System of the Human Life of the Universe.

By ALBERT TRANTER.

IN order to utilise the optical lantern to illustrate a fine philosophical idea, I have thought out the following diagram, and which I think will be of considerable interest to those who believe in looking beyond the beauty of mere material things to the beauty of spiritual or intellectual light, and to which beauty that of all material things must at all times be subservient to, though the one is not, perhaps, complete without the other, notwithstanding what is said by ascetics on the matter:—



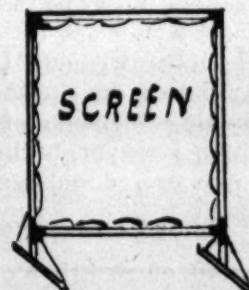
LAMP.—The Human Body.

OIL.—Material Forces of Nature.



GLASS.—The Brain or Mind of Man.

PICTURES.—Thoughts or Inspirations.



Life and Actions.

OPERATOR.—Deity or Satan (or Spirits of Good and Evil).

Platform Foodstuffs.

By W. SMITH.

ALONE in his "Sanctum Sanctorum," the lanternist sits wonderingly bewildered, for is he not there for "fixing up" purposes, and finds the task somewhat puzzling. His subject for the coming session does not come so readily as it used to do; somehow or other it has strayed into the maze and got mixed with wars, and rumours of wars, with successes and failures of expositions, with the attractions and difficulties that attend the opening up of new territory; it has knocked against tragic assassination of potentates whose lives have been blameless, stumbled against flesh and blood heroes, of whom, until yesterday, nobody had either heard of or cared about; it has made impact with China, and impinged South Africa; truly what has become of it? And our friend is scared, lights a pipe of collectiveness, tries to bring

back to his mind's eye, through the smoke-clouds of mystery, the quiet demeanour of a bygone personage, George Buckland by name, who would (as was his wont) have sung:—

"Say what shall my song be to-night;
And its strain at your bidding shall flow,
Shall its measure be sportive and light,
Or its murmur be mournful and low?"

Surely the foodstuffs in the field grow daily apace, till one becomes alarmed at the numbers, and which makes the task of selection difficult in the extreme.

The many purposes, both intellectual and recreative, to which the optical magic lantern is put, are numberless, and no matter what the purpose be, it is food for the lecturer in that particular groove of thought.

There is nothing in Nature that is not a main factor for debate, so if that be accepted, every

blade of grass, the grain of the field, the earth's productions generally, all forms of animal and vegetable life, the raindrop, from the time it leaves the cloud in its purity to the close of its purpose, the metals and minerals that are stored beneath the surface, and limitless others, have been made, or can be made, subjects for lantern treatment.

Experience has shown us, that though the foodstuffs for lecturers are so many and various, so also are the lecturers many and various, and might be divided into several classes. It would be absurd to infer here, that all lecturers wanted, or cared to know anything of a variety of subjects, because the majority simply don't; one subject as a rule is sufficient for the lecturer proper, and at that he will hammer away all his life long. The man of science, taken in the abstract, abhors to be thought anything else than a man of science, and he will teach that branch of his research and nothing more or less; in other words, he has gained knowledge from study, is anxious to be a philanthropist and

impart what he knows to be fact to others; he is a lecturer proper, and should he condescend to recognise the usefulness of pictorial demonstrations to make his meaning more clear, he calls the lantern to his aid; not that it will add much to his own stock of knowledge, but that it may assist him in driving home the truths he endeavours to propound to others.

Science as a foodstuff for the scientific lecturer is inexhaustive, and the audience he addresses is quite opposite in taste and opinion to the science audience of a quarter of a century ago. Books on any branch of the subject, even if they be thoroughly accurate, are not easily understood, they are too comprehensive in their treatment, taking much time to read, and often leave much that is blank on the mind of the reader. The use of the lantern clears this up to a very large extent.

Readers may be aware that some science subjects would not be attempted in these go-ahead times without the why and wherefore being shown on the screen. Space only allows of making mention of one of a number. Sir Norman Lockyer, perhaps the head of English astronomers, could teach us much about the

phenomena of the sun

by word of mouth alone, but how much more should we learn by the teaching being accompanied by practical demonstration. Science is crammed full of foodstuffs for the lantern.

The same may be said of history, philosophy, literature, chemistry, biography, and of the fine arts, and in fact very many more.

It may be of interest to state that the programme for one day, viz., Monday, September 10th, at the meeting of the British Association, held at Bradford, embraced eighty-six papers and reports—and it may safely be stated that quite 50 per cent. of the subjects would be foodstuff for lanterndom.

But there are lecturers who are not deep thinkers, and who, if left to themselves, would come poorly off. Those of the geographical turn take advantage of the most popular undertaking or sensation on—as it were—the public market, and as examples affairs in South Africa, in China, the voyage of the Southern Cross, and exploration of the Polar seas claim attention, and are safe foodstuffs for digestion. The public like to know of the daily talked of nations, so the geographist is never at a standstill.

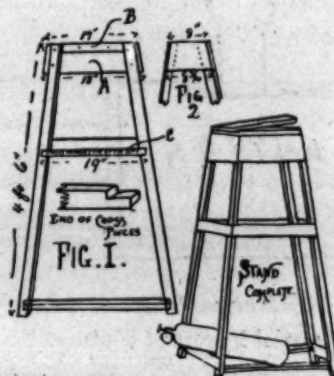
There is also a class of lecturer who, as Pat says, "is not a lecturer at all, at all"; he who merely reads or recites the stereotyped matter prepared by so-and-so at so much per yard, and of whom I may have something to say later.

A Cheap and Effective Lantern Stand.

By H. H. WARD.



THREE seasons ago I had to take up a series of exhibitions on Saturday evenings. These were all held in the same building, and it was evident, after the first night, that I should have to have some other support for my lantern than the big shaky thing that was forthcoming on my urgent application for a "small firm table." Naturally, I thought of all the excellent stands I had seen for sale. Now excellent stands cost money, and of silver or gold I had very little. Copper was king, so a couple of big boxes which had contained packets of rolled oats, and some pieces of board had to form a stand somehow or another. I had three things to consider.



The stand must take up very little floor space. It must not be easily upset. It must be very light and strong. What was evolved covers these points I think.

First, I cut the legs. These are 4 feet 6 inches long, and $\frac{7}{8}$ by $1\frac{1}{2}$ inches thick. A piece of 7 inch board was sawn up to make the four.

Two pieces of wood from the ends of the boxes, which were $\frac{1}{2}$ inch thick, were cut to the shape of A (Fig. I.). The top edges of these pieces were 17 inches long, while the base was 18 inches. The breadth was 7 inches, so the correct angle can very easily be marked if a centre line is used. These pieces were firmly screwed to the legs on their flatter sides at the angle as shown, in order to make them wider at the foot than at the top, but the legs were kept $\frac{1}{2}$ inch off the edge for the reason that will be seen further on. A little piece of wood was fixed between the top of the legs to secure the top of the stand. This is marked B (Fig. I.). The cross pieces C (Fig. I.) were 19 inches long outside, and $\frac{7}{8}$ inch square. They were put on the

inside of the legs and drawn tightly up to about 22 inches from the top. Two strong screws were sent through each. The shape of the ends is shown in sketch. The bottoms of the legs were treated in the same way, except that they were pulled together tightly by the cross pieces (which were 1 inch or so from the ground) so as to put on a slight strain.

The ends of the legs were now cut to fit at the proper angle to the ground.

I had now got the front and back of the stand which had to be joined.

The ends (Fig. II.) were 8 inches on top, and the base was $8\frac{1}{2}$ inches. The depth was the same as the sides, i.e., 7 inches. They were screwed to the legs, fitting in between the overlapping half inches of the sides.

A shelf for slides was fitted between the stand, resting on the cross pieces c (Fig. I.), and fastened firmly to them. This shelf should be not less than $\frac{3}{8}$ inch thick—better $\frac{1}{2}$ inch as it has a lot of weight to carry at times. A strip of thin wood, 4 inches wide, was put on all round so as to form a tray, each piece being cut to the angle of the legs.

Cross pieces, 3 inches wide, and $\frac{7}{8}$ inch thick, must be fastened to the remaining ends of the legs. These

must be strong

as they are intended to hold a cylinder, the weight of which pins the whole structure to the ground.

The top was next taken in hand. This is very simple, being only two $\frac{1}{2}$ inch pieces hinged together at one end. The lower piece is fastened well to the top of the legs, and pieces provided for that purpose. A small strip is run round three sides of the upper piece to prevent the lantern from slipping off or going sideways. The size will, of course, depend on the size of the lantern base. Give the whole a coat or two of dark coloured paint outside, light coloured in.

No tilting screws were provided, but if the reader wants them, he should buy a couple of small wooden screws and nuts from a wood turner. The nuts must be glued to the lower piece of the stand top, on the under side, before fastening to the top of the legs, and a hole bored for each screw. The heads of the screws are underneath where they are easily got at, but when lowered they are quite out of the way and cannot be damaged. Rub some black lead on the threads of the screws before using.

A small reading desk could be added at the back if desired.

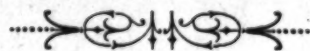
It would be an improvement, perhaps, to fill in the three sides of the stand, from the shelf

right up to the top, leaving only the front open for the handling of the slides.

One word of warning. Don't nail any part. Glue if you like, but screw also. Make every part fit really tight.

My stand was made in a hurry and used constantly, not only at the place it was built for, but elsewhere. It has had three seasons real hard wear and "gentle" handling by many persons, yet it is as good as new.

The cost was about 2s. 6d., inclusive of wood, hinges, screws, etc.



An Impromptu Show.

By TOM ROUNEY.



VERY girl and boy in the land should aspire to some genial accomplishments. Of course, we are not all fitted to pull in the same boat. Some of us being blessed with good voices have turned vocalists, others, whose talents lay in different musical grooves, have followed in those grooves till proficient, and there is little doubt but we can all achieve a something by which we can give pleasure to others as occasion would seem to demand.

'Tis pleasant to be satisfied with oneself, inasmuch as being prepared at any, or all time to fill a stop gap in an emergency, and in doing so exercise a modesty which becomes more and more natural as we advance in knowledge.

Christmas is close upon us. The fact of this has brought to the writer's mind memories of bygone Christmastides and how they were spent, and thinking that hundreds of readers will in the near future be called upon to assist in the programme at Uncle Charlie's or Aunt Mary Ann's, thinks it not altogether out of place to relate in as few words as possible how he gave an impromptu show in a country home to the surprise and delight of all present, and whilst we do not all possess the same variety of gifts, we can all be prepared to do our best and so make ourselves agreeable.

To begin in orthodox fashion, it all came about through my falling in love with Fanny. Fanny was the most jolly girl I ever knew, or have ever known. We danced together, sang together, played tennis together, and if Fanny were cast to play the heroine in our private

theatricals, I was either first walking gentleman or the villain. The latter must have been the greater success of the two, because she once said that "Tom," meaning me, "was the most magnificent villain I have ever seen," and if I were down for a lantern evening at the schools, Fanny was invariably my coadjutor in the job. So who could help falling in love—and in the end we became what is commonly called "engaged."

The first Christmas of our engagement, Fanny had, for family reasons, to accept an invitation to spend Yuletide with an aunt and cousins in their house in Cambridgeshire, so a week before the 25th she bade me good-bye for a fortnight. Two or three days, however, after her departure, she sent me a pressing invite from her old aunt to go down on the 24th for as many days as I could conveniently spare. Fanny told me what a horrid dull place it was, and Christmas would not be a bit like Christmas to her if I did not accept. She wanted me, she said, to help make the fun, "and oh Tom," she wrote, "whatever you forget, don't forget to put the 'baby' in your valise; I'm sure we can do with it here, I and one of the girls will be at the station with the pony chaise."

At 12.30, on the 24th, I arrived at a station some few miles from Cambridge called "Six Mile Bottom," on the Newmarket line, I think. There was Fanny and one of her fair cousins, both looking

pictures of health

in the keen frosty air. "Have you brought the 'baby,'" were Fanny's first words, and both girls seemed relieved and happy when I answered "Oh, yes."

The village of "Brinkley" is some 4 or 5 miles from the station, but we were there all too soon, for the open country was enjoyable.

I found them a dull lot—the family I mean, and could quite understand Fanny's anxiety for me to bring "baby" to the rescue. Wherever I went, or now go, the "baby" goes too, and is always welcomed. Perhaps I should explain the "baby" is my small collapsible lantern, such a useful little thing, not a bit like the triple, or what Fanny calls "Grandfather." "Well," she says, "there are three generations, one, two, three."

The arrangements for Christmas evening were complete before my arrival, the "baby" taking a prominent part in the bill. The servants' hall had been converted into a hall of entertainment, and right well they had done it. I have never in all my life seen a lantern screen that so took

my fancy, partly due to the fact that I had nothing to do in rigging it up. A sheet as white as it is possible to be—and they do look white in the country—made taut by judicious lacing, but the border, "Oh the border," must have taken hours—the servants had done it they told me—4 inches deep all round, all holly and mistletoe, hips and haws, and all intermingled, the effect was good. To the left of the screen was the piano, to the right a small portable table for my conjuring tricks. Oh! I generally put a few in the valise, they are easy to learn, inexpensive, and cause endless fun. I shall never forget the expression on the face of Fanny's aunt when the penny went through the tumbler of water. "Oh, dear me," the old lady was positive that the penny fell into the water, because she herself had held it beneath the handkerchief till Tom said "Presto Fly." She not only heard it drop into the glass, but the water had splashed her hand. The butler too was somewhat mystified when Fanny and I went through our second-sight and

thought-reading

scena. How he watched me as I blind-folded her, led her to the piano, and whilst she played "Pianissimo in G," "A Sonatina" by Beethoven, or a "Nocturne" by somebody else, she was at the same time telling the company of the penknives, the fans, the scent bottles, handkerchiefs, etc., etc., I had borrowed from one and the other, she knew everything—they were puzzled.

It is worth all the trouble one is put to when I remember the profound silence in that room as I was taking my very kind audience through hundreds of miles of hills and dales, river, road, and mountain side, through woodland grove, o'er mossy bank and forest galore. I can not forget when I wished them to be very still as I explained the beauties and surroundings of Dunkeld, that perchance they might hear the sound of bells coming from the cathedral they saw on the other side of the water, and as Fanny turned on our musical box arrangement in imitation of church bells, one servant was heard to whisper to another, "Isn't it beautiful."

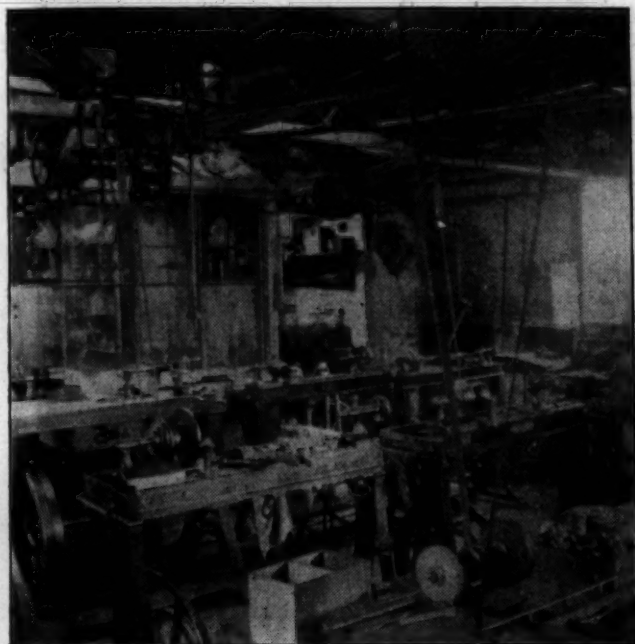
"Baby" behaved like an angel, "an angel of light," especially in illustrating the Holy City, sung as only Fanny could sing it. The hum-drum drowsiness of a country family home was turned from its monotonous games of draughts and backgammon to a Palace of Varieties for one night only—and all through my falling in love.

A Model Workshop.

ABOUT 10 or 11 years ago, Mr. Frederick Brown commenced business on his own account in a small shed at the foot of a garden at 13, Ossulston Street, Euston Road. Here working for the most part with the aid of a boy, he began making limelight jets for the trade, repeat orders came in faster than he anticipated, so he sought larger premises at 11 of the same street. One lathe became two, two three, and three soon increased into six, and extra assistants had from time to time to be taken on. These premises becoming somewhat

well. He is able to say with pride that he has never lost a trade customer, and we happen to know of several appliances or ideas which when first brought to him were crude and uncommercial that have since developed into successes mainly through the improvements suggested and worked out by him.

At his workshops a diversified style of apparatus is manufactured, including ordinary lime-light jets, the F. B. jet, Gridiron saturator, the Stedman-Brown oxygen generator (this latter has just been taken over by a syndicate and is to be pushed on a large scale), cinematographs, automatic and otherwise, electrical and astronomical apparatus; in fact, Mr. Brown and his assistants seem able to make something good



cramped, a bold step was decided upon, and workshops and offices were taken at 13, Gate Street, off Holborn, extra plant was laid down, and a gas engine put in. During the past year or two extra lathes and diversified machinery has been added, and although the workshops are by no means of small dimensions, every available space seems to be occupied, and Mr. Brown appears to be on the high road to fortune.

Of course, there is a reason for this success, and briefly it is as follows. Mr. Brown, who is a born engineer and mechanic, dons the white jacket and gives his personal attention to even the smallest details of his business, and considers that if a job is worth doing at all (even should by any means the first order result in a small loss) it is worth doing promptly and



from almost any crude idea which may be submitted to them. Pittler lathes are employed for making many parts, and almost any form can be turned on these wonderful machines, which require to be seen in operation to be properly appreciated. We were recently shown over these works, and the first thing that impressed us in the midst of this apparent jumble of machines and pulleys was that a strict rule is made of having a place for everything and everything (not actually in use) in its proper place. In another part of the same building arrangements are being made to add further to the workshops, and this like the present one will be connected to the private office by telephone. We are enabled to show a couple of views in this hive of busy bees.

NEW APPARATUS.

PRESTWICH PROJECTOR.

The latest cinematographic projector issued by the Prestwich Manufacturing Company, of 744, High Road, Tottenham, is said to be very effective. One or two novelties which appear in this machine will be brought before our readers in next issue, after we have seen them in action.

WILKIE'S EFFECT AND OTHER SLIDES.

Some pretty effect slides of an entirely new series of Paris Exhibition have been issued by Mr. E. H. Wilkie, of 114, Maygrove Road, West Hampstead, and are of his usual high rendering. The Transvaal War effect slides have been greatly increased, and many new mechanical appliances added to some of these slides.

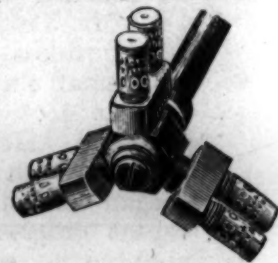
LIFE MODEL SLIDES.

Mr. James Bamforth, of Holmfirth, makes a special feature of life model slides, and right well does he arrange his models. So long has he been at this special branch, that it becomes second nature with him. His latest productions include:—Jack the newsboy, 43 slides; Tim's sacrifice, 35, arranged as a musical service; Fighting for the Queen, 44; The quarryman's resolve, 12; Fair hair and seagulls, 20; The shadow of a life, 43; Old settler's story, 26; Ringing of the bell, 21; Saved by his Bible, 47. There are also numerous life model sets of a humorous character and illustrations for songs such as:—"Come back to me," "Song of Angels," "Soldiers of the Queen," and a variety of others.

REVOLVING ACETYLENE JET.

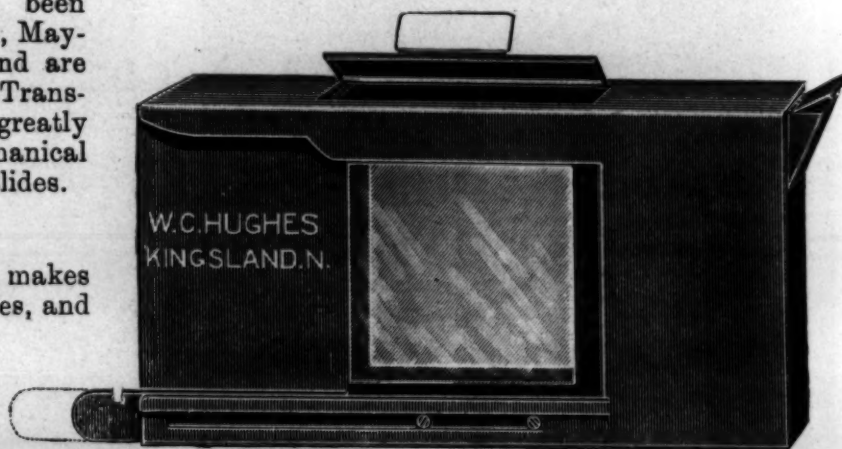
It sometimes happens that the lanternist when using acetylene gas is troubled by a deposit of carbon which greatly disturbs the light-giving properties of the gas. True, it is no very difficult matter to remove it, but unless the burner be well cleaned the deposit collects again in a short time. Mr. William Tylar, of Birmingham, has introduced

a jet in which this trouble is minimised, inasmuch that should the burner carbonise a new one can instantly be brought into play. The annexed illustration shows the burner end of this new jet, the uppermost burner only for the time being having a clear gas way. Jets of this pattern are made either with three single burners or three double burners, the former being size 0000 and the latter 00000.



COMBINATION TANK AND CARRIER.

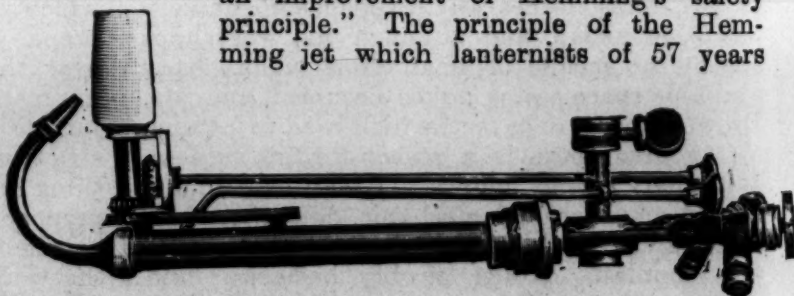
A novelty brought out by Mr. Hughes is a combination tank and carrier. The tank is filled with glycerine or water and used in the lantern for intercepting the heat rays, especially



for cinematograph work. A slide can, when desired, be inserted in this carrier-tank.

HUGHES' NEW JET.

Mr. W. C. Hughes, of Kingsland, has brought out a new jet, which he claims gives "great intensity and pure whiteness of light, it being an improvement of Hemming's safety principle." The principle of the Hemming jet which lanternists of 57 years

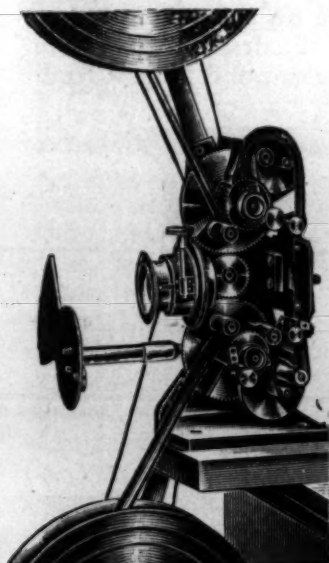


ago may remember, was that the brass cylinder answering to the mixing chamber in

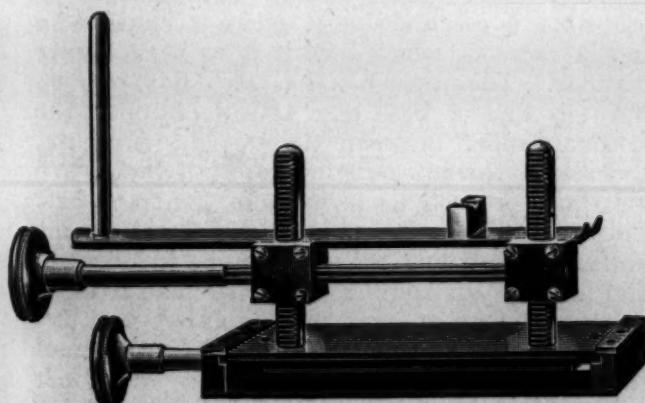
the jet illustrated was filled with equal lengths of brass wire so fine that it took 5,000 to fill the cylinder which was of 1 inch diameter. This was in the days when the gases were used mixed together in one gas-bag, and it was brought out as a preventive of firing back.

DOUBLE ACTION CINEMATOGRAF AND ADJUSTABLE TRAY.

Mr. Hughes, in perfecting his reversing cinematograph machine, has fitted it with two cam striking movements, so that the film can be projected either in the usual way or reversed,



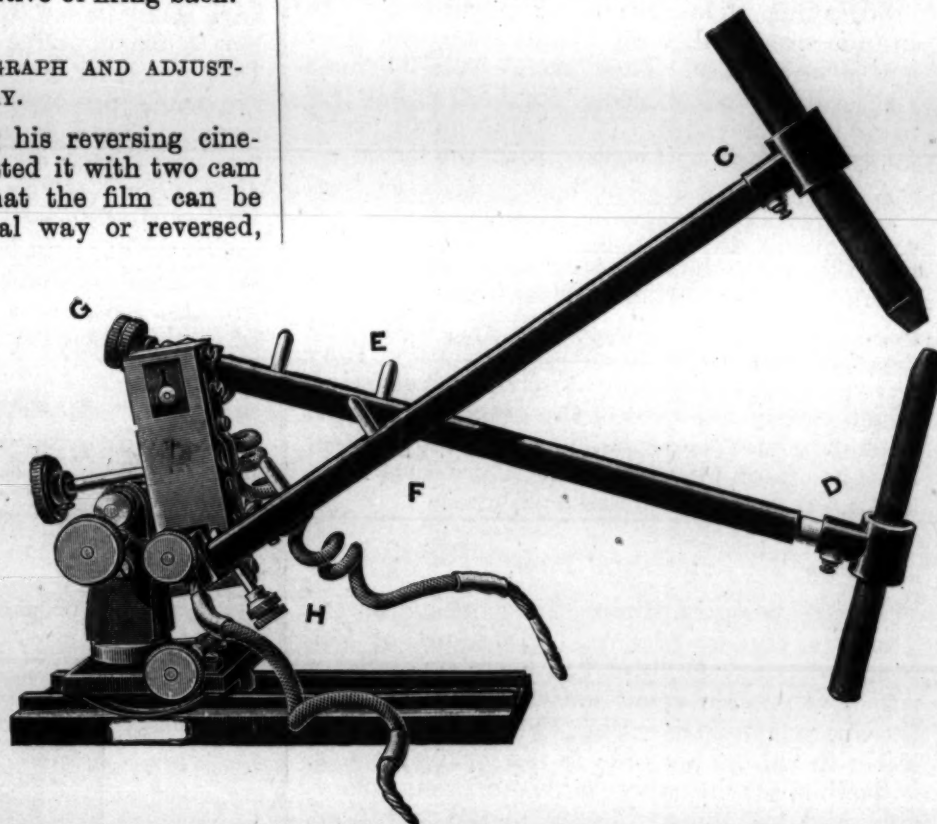
the change being made simply by turning the handle in the opposite direction. The film spools are large and capable of holding about 700 feet of film. This tray will be found of



great assistance in the proper centering of the light, especially with the cinematograph. Its principle will be at once seen from the annexed out.

"PRIMUS" NOVELTIES.

As usual about this time of year Messrs. Butcher & Son, of Blackheath, have a goodly assortment of new goods, amongst them being the Home cinematograph for continuous



films. This lantern is intended for use with either oil, limelight, or incandescent gas.

MATAGRAPH ARC LAMP.—This lamp, as will be seen, is hand-fed. The claws at the end of arms c and d hold the carbons, which are secured by stout pressure rods running the whole length of the arm and actuated by spring releases at e and f. In the lower arm d the carbon-holder is carried on a rod sliding in an outer tube, which can be moved forward or back by the milled head g to regulate the position of the crater with great precision. Lateral adjustment of the crater is made by the milled head h moving the upper carbon. The lamp is fitted in a heavy planed iron travelling bed, with mechanical movements in all directions, which must be screwed down to the stand or cabinet on which the instrument is placed.

In the way of jets Messrs. Butcher are making a special feature of fitting these with fine adjustment screw-down valves, and also a mechanical backward and forward adjustment for the lime.

Amyline is claimed by Messrs. Butcher as a new oil for use in lanterns. They state that with it the unpleasant smell inseparable from paraffin is non-existent; this will be pleasant news to users of oil lamps for lanterns. Coloured lithographic slides are being pushed by the Primus firm, and a set of these on the Boer war is now ready. Their useful little "Primus Lanternists' Pocket Book" for 1900-1, has just made its appearance. It contains much useful information and will be sent post free for 6d.

SPAIN AND GIBRALTAR.

Spain seems to be a country about which outsiders know very little, at least from a pictorial point of view, but Messrs. G. W. Wilson, of Aberdeen, are about to change all that. They have published something like 500 views of Spain, which cannot fail to be of the greatest interest. Intending purchasers can, by paying the postage, have books of pictures in miniature sent them on loan from which to make selections.

THORNTON FILM.

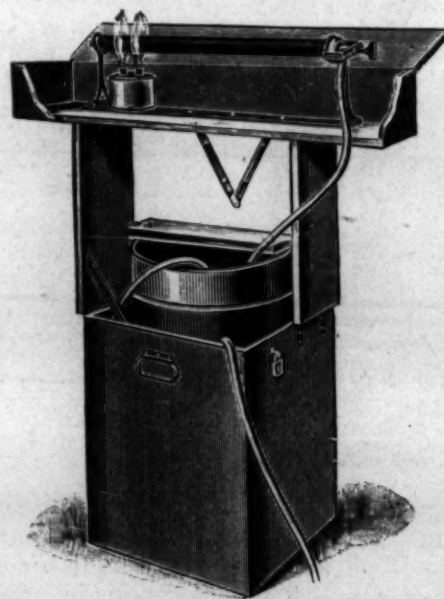
We were recently shown the working of the Thornton film by Mr. W. D. Welford, of 166, Romford Road, E., who has been appointed a special wholesale agent for this film. It is a transparent negative film, which is supplied either in flat cut pieces or in the form of spools, is flexible, tough, unbreakable and non-inflammable, and does not curl in any of the operations of developing or washing. This film consists of a layer of insoluble gelatine, coated with a rapid emulsion, and supported by a backing of translucent paper. The exposure, development and other manipulations are carried on in the same manner as if a glass plate were used, but as soon as it has become thoroughly dry the paper backing is peeled off, leaving a perfectly flat, flexible and transparent negative which can be printed from either side.

RILEY BROTHERS' NEW SLIDES.

Amongst the slides by this firm we find the following sets:—The Boers, 62 slides; The Boer war, 60; Armies of Europe, 60; Soldiers of the Empire, 60; Sailors of the Queen, about 80; Scamper through the United States, 62; A month in the United States, 60; Trip from New York to Florida, 60; Life among the darkies, 48; Washington, 60; Tea growing, 31; Bible heroes, 60; The absent-minded beggar, 9; Book of Common Prayer, 24; The Litany, 14; illustrated hymns, mechanical effects, etc.; also a good number of cinematographic films.

THE "RILFORD" OXYGEN GENERATOR.

Encouraged by the success of their No. 1 "Rilford" Generator, which was intended for the production of oxygen for a single lantern, Messrs. Riley Brothers, Limited, of Bradford, have lately issued what is termed the "Rilford" No. 2, for supplying a bi-unial or triple lantern. This generator, although working on precisely the same principle as the former, is slightly larger. The apparatus when closed presents the appearance of two boxes of the following dimensions:—40 by 5½ by 6½ and 20 by 17 by 17, and these contain everything necessary in the way of lighting for a prolonged lantern exhibition. When setting up the apparatus, it will be seen from the illustration that the lid of the larger box is divided and hinged from



opposite sides. These having been opened, the other box is set upon this, where it engages in special catches, which hold it in a very secure manner. The upper box has two lids, one on the top and a half one at the bottom; the latter opening between the upright supports, and allows the actuating lever to fall down. We will now proceed as it were to generate gas. The steel tube or retort which is found in the upper box is opened, the inside lining withdrawn, and into the divisions of this are placed eight cartridges; the lining is then replaced and the retort closed, and placed upon its two small supports. It is connected by a piece of rubber tubing to an inlet tube of a separate washing tank, which has been filled with water and set inside of the dry gasometer, which is of peculiar formation. This washer also acts as a weight to give pressure to the gas. From this washer or purifier the gas is led to the dry gasometer

alluded to, and from thence to the burners. Everything being in readiness, it is only necessary to light the spirit lamp, which is supplied with a draught shield. This flame being immediately below the cartridges, soon causes oxygen to be given off, which is heard bubbling through the purifying chamber whence it goes into the gasometer causing it to rise. When nearly full, the platform on the gasometer pushes up the lever which is seen hanging down, until the end under the lamp engages in a catch. As the gasometer falls, the lamp is automatically moved under the two next cartridges in the retort, which in turn again fill the gasometer. This movement, which is quite automatic, goes on until all the cartridges have been exhausted, which with an average limelight jet would occupy about $1\frac{1}{2}$ hours. If more gas be required, another supply of cartridges must be placed in the retort, but as the metal work would be very hot, the second retort, which is included in the outfit, and which would previously, of course, have been filled, is substituted for the first, when the generation of gas goes on as before without a break. Suitable valves are provided to the wash bottle to prevent all chances of water reaching the retort itself, and also precludes all chance of gas escaping during the interchange of retorts. To push back the lamp and change the retorts occupies about 10 seconds. This generator, which works with great certainty and no trouble, is especially good for use with an ether saturator, and a very important point is that when travelling one can take their complete lantern outfit with them and feel no anxiety as to the delay of gas cylinders. Should extra pressure be desired, an extra weight can be inserted beside the wash-bottle. With the outfit a cartridge moulder is supplied.

CINEMATOGRAPH FILMS OF CHINA.

Messrs. Harrison & Co., of 13, Berners Street, W., are prompt in the introduction of cinematographic pictures pertaining to subjects uppermost in the public mind. Some of their latest give a good idea of life in certain parts of China. These include:—Street scene in Peking, Panoramic view from a train between Tientsin and Peking, Factory hands, Women spinning, Craft on the river, Chinese Punch and Judy show, Laundry work, Boat racing, etc. These are part of a series of views taken during the tour of E. F. G. Hatch, Esq., M.P. These films, we are given to understand, are in great demand, and will be delivered in strict rotation of order received, with as little delay as possible. They are being exhibited in the principal London halls.

PATENT INTELLIGENCE.

The following List, relating to current Patent Applications, is compiled expressly for the "Optical Magic Lantern Journal" by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No. RECENT PATENT APPLICATIONS.

- 13861. 2nd August, 1900. Carl Gabler. Improvements in and relating to lanterns. (Complete.)
- 13883. 2nd August, 1900. William Friesse-Green. Improvements in or relating to kinetoscopic or cinematographic apparatus.
- 13916. 3rd August, 1900. Warwick Brookes. An improved suction device for attaching a lens to a focusing screen of a photographic camera and for like uses.
- 14372. 11th August, 1900. Robert William Paul. Improvements in apparatus for projecting animated photographs.
- 14487. 13th August, 1900. Carl Paul Goerz. Improvements in astigmatically corrected lenses. (Complete.)
- 14700. 16th August, 1900. Jean Schmidt. Improvements in flashlight apparatus for use in photography.
- 14789. 17th August, 1900. Tom Fryer. Improvements in or relating to machines for sighting pictures cinematographically. (Complete.)
- 14848. 20th August, 1900. Ernest Thomas Saunders. Improvements in apparatus for projecting animated photographs on to a screen.
- 15226. 27th August, 1900. John Alfred Prestwich. Improvements in cinematographic apparatus.
- 15303. 28th August, 1900. Paul Hunæus. Improvements in and connected with photographic developing trays.
- 15319. 28th August, 1900. William Henry Hamblin Palmer. Dark slide for revolving disc cinematograph apparatus.
- 15415. 29th August, 1900. George Frederick Hatton. Improvements in means to be employed in the taking and viewing of cinematographic pictures.
- 15551. 31st August, 1900. Samuel Quincey. Improvements in apparatus suitable for developing and fixing photographic films and the like.
- 15722. 4th September, 1900. Edwin Drew Bartlett. Improvements in photographic cameras.
- 15866. 6th September, 1900. Samuel Joseph Levi. Improvements in or connected with binocular glasses.
- 15926. 7th September, 1900. Charles Howell. Improvements in photographic apparatus or cameras.

Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.

SPECIFICATIONS PUBLISHED.

- 16773 of 1899. Wray. Coin-freed apparatus for exhibiting series of photographs or other pictures.
- 12538 of 1900. Stuart. Construction of prismatic binocular field or opera glasses.

- 17832 of 1899. Besancon. Achromatic refracting lenses and method for manufacturing the same.
- 21430 of 1899. Colardeau and Richard. Automatic apparatus for successively presenting to view photographic or other pictures or slides in stereoscopes, optical lanterns, and the like.
- 21480 of 1899. Aitchison. Construction of prismatic binoculars and other prismatic optical instruments.
- 22371 of 1899. Coventry. Devices to be used in washing photographic plates or films or the like.
- 9564 of 1900. Turner and Kelley. Photographic cameras.
- 10000 of 1900. Krayn. Means for and method of projecting or viewing photographic pictures with natural colours.
- 10586 of 1900. Milner. Camera, more particularly intended for use in connection with architectural photography, for measuring angles.
- 11745 of 1900. Wolff. Fixing and guiding of pictures in kinetoscopes.
- 11484 of 1899. Thomson & Jachto Patent Automatic Advertising Lamp Company, Limited. Coin-freed display of stereoscopic pictures and other views.
- 17952 of 1899. Alberini Cappeldetti and Ganucci Cancellieri. Cinematographic cameras and projecting apparatus.
- 10050 of 1900. Armat. Apparatus for projecting animated pictures.

Notes and Queries.

Correspondents must supply their names and addresses, but, if desired, queries can be replied to under a "nom de plume."

Bullard & Breck (San Francisco).—Your letter only had a two cent. stamp on it; consequently it cost us three-pence for the opportunity of answering your questions. (1) A lens to give you the desired size of picture under the conditions mentioned would require to have a focus of 103 inches. (2) The focal length of the kaleidoscope lens depends entirely on the size of disc you want; adapt any of your lenses temporarily for the purpose, and a trial will at once give you to understand if that particular focus is too short or too long. A prism as suggested by you would be useless; besides, where would you find room to put it? Unless you use a separate lantern fitted with the attachment you cannot run matters smoothly without a break, for some time must be taken up in adjusting things, and this is no simple matter. You, as a dealer, can get apparatus from Wrench & Son, 50, Gray's Inn Road, W.C.

Light asks how is it that one sees hand cameras of precisely the same style and make sold by dealers under different names? The cameras I speak of are exactly

the same; in fact, the fittings are interchangeable. *Ans.*—There happens to be such a party as a maker for the trade only. He supplies Mr. A., Mr. B., Mr. C., and so on. Each dealer then puts on a little celluloid or other label containing his own name and address, and a distinctive trade name for the camera.

Slides.—You are quite safe in making a copy for your own use.

Riverina (New South Wales).—Respecting your question about the condenser, you will be able to thoroughly understand matters if you make a diagram as follows:—Draw the shape and exact size of the opening of the largest sized mat of your lantern slides on a sheet of paper, then draw two lines from the opposite corners; these will intersect in the middle of the opening in the mat. Place one leg of a pair of compasses on the point of intersection, and describe a circle of such size that it will comfortably clear the corners of the opening of the mat. A condenser of about this diameter is the size to use. If you used a large condenser it would be necessary to place the slide further away from it, so as to get the whole of the cone of rays to pass through the slide. You will find that a 4 inch condenser will answer for what is termed cushion mats, whereas if the corners are square you will require one of $4\frac{1}{2}$ inches diameter.

Robert Giles writes:—In conversation with a friend about limelight matters, he told me that some time ago it was usual to mix the oxygen and hydrogen together in a gas-bag, and use it in that manner, and that no accident had ever occurred by using it in this way. Kindly let me know if the above is correct? *Ans.*—It is quite true that the gases were at one time employed in the manner you state, and when the pressure was kept up there was no special fear of danger; but instances have been known of the pressure weights falling off, especially when, as was not unusual, a small boy was seated on the pressure board to supplement the weights at hand. In such cases the remains of the boy were usually gathered up by means of a shovel. Mixed gases in one bag would not be permitted at any public exhibition nowadays.

Cinematograph writes:—Would the Editor of THE LANTERN JOURNAL or readers give me their opinions of exhibiting the set of films "Life of Christ" with good lantern slides on the same subject and appropriate vocal music by talented artistes. Of course, the whole thing to be treated very reverently. A thorough up-to-date exhibition, in the largest halls, at popular prices. *Ans.*—Such an exhibition, treated on a high scale, should be very impressive to certain people.

A. Heaton.—It makes no difference and it is quite safe to use one make of automatic regulator in the oxygen cylinder and another make in the hydrogen cylinder.

J. Elderkin.—The No. 3 folding pocket Kodak should suit your requirements. The firm supplying this can also let you have the necessary outfit.

Sunderland writes:—Can you inform me when the optical problem was solved for producing an absolutely flat image with a single achromatic lens with good illumination? *Ans.*—We have never heard of this problem being solved in a satisfactory manner with a single lens, such as you state. It requires great optical skill to attain a flat field with even a compound lens.

J. C. White.—(1) The Injector jet is said (by those who have used it) to be a great success; it can be used either with gas from the main or from a cylinder. Certainly for dissolving purposes. (2) The Chrono projector is a good instrument.

Several articles are held over for want of space.